IXL Learning, Inc.

Supplemental English Mathematics, Precalculus

IXL Math Precalculus

MATERIAL TYPE	ISBN	FORMAT	ADAPTIVE/STATIC
Supplemental	**9781947569355**	**Digital**	**Adaptive**

Rating Overview

TEKS SCORE	TEKS BREAKOUTS ATTEMPTED	ERROR CORRECTIONS (IMRA Reviewers)	SUITABILITY NONCOMPLIANCE	SUITABILITY EXCELLENCE	PUBLIC FEEDBACK (COUNT)
100%	32	1	Flags Addressed	Not Applicable	0

Quality Rubric Section

RUBRIC SECTION	RAW SCORE	PERCENTAGE
1. Intentional Instructional Design	13 out of 21	62%
2. Progress Monitoring	19 out of 23	83%
3. Supports for All Learners	24 out of 37	65%
4. Depth and Coherence of Key Concepts	5 out of 16	31%
5. Balance of Conceptual and Procedural Understanding	21 out of 38	55%
6. Productive Struggle	19 out of 21	90%

Breakdown by Suitability Noncompliance and Excellence Categories

SUITABILITY NONCOMPLIANCE FLAGS BY CATEGORY	IMRA REVIEWERS	PUBLIC	Flags NOT Addressed by November Vote
1. Prohibition on Common Core	1	0	0
2. Alignment with Public Education's Constitutional Goal	0	0	0
3. Parental Rights and Responsibilities	0	0	0
4. Prohibition on Forced Political Activity	0	0	0
5. Protecting Children's Innocence	0	0	0
6. Promoting Sexual Risk Avoidance	0	0	0
7. Compliance with the Children's Internet Protection Act (CIPA)	0	0	0

SUITABILITY EXCELLENCE FLAGS BY CATEGORY	IMRA REVIEWERS
Category 2: Alignment with Public Education's Constitutional Goal	0
Category 6: Promoting Sexual Risk Avoidance	0

IMRA Quality Report

1. Intentional Instructional Design

Materials support educators in effective implementation through intentional course and lesson-level design.

1.1 Course-Level Design

GUIDANCE	SCORE SUMMARY	RAW SCORE
1.1a	The materials do not include an alignment guide for the ELPS.	2/5
1.1b	All criteria for guidance met.	3/3
1.1c	All criteria for guidance met.	2/2
1.1d	The materials do not include specific guides for unit internalization.	1/2
1.1e	The materials do not include pacing recommendations and offer limited support for instructional leaders.	2/2
—	**TOTAL**	10/14

1.1a – Materials include an alignment guide outlining the TEKS, ELPS, and concepts covered, with a rationale for learning paths across grade levels (vertical alignment) and within the same grade level (horizontal alignment) as designed in the materials.

IXL Math materials list the TEKS by individual activity. By navigating to Texas Essential Knowledge and Skills (TEKS) Math, Precalculus, the user may access each TEKS. The included TEKS have specific activities assigned. Specific examples include two activities linked to the TEKS P.2D, which are: "1. Even and odd functions" and "2. Symmetry and periodicity of trigonometric functions." However, materials do not include an alignment for the English Language Proficiency Standards (ELPS).

The materials provide a rationale for both vertical and horizontal alignment within the curriculum. For example, "Skills" "Q: Matrices" opens all related practice topics, and clicking on "2. Matrix Operation Rules" directs users to the corresponding practice activity. Each practice includes the embedded prompt, "Work it out. Not feeling ready yet? This can help," which directs students to review resources like "Lesson: Matrix Vocabulary." These supports are designed to reinforce prerequisite skills and build foundational understanding. Additionally, the Teacher Tools feature allows educators to adjust difficulty by clicking double carets (<< or >>) to "Jump a Level," enabling targeted review or acceleration based on student need.

1.1b – Materials include an implementation guide with usage recommendations and strategies for effective educator use, such as just-in-time supports, advanced learning, or as a course.

Within the "My IXL" section, "Resources" offers *Implementation Guides* for varied instructional contexts. These supports are delivered through downloadable PDFs and instructional videos for teachers.

The "Daily Instruction Guide" includes identifying a skill that supports the day's lesson, reinforcing student understanding through skill practice, and determining next instructional steps with the Skill Analysis report.

The "Diagnostic Assessment" includes "uncover students' knowledge levels," "get personalized next steps for every learner," and "access up-to-date insights."

1.1c – Materials include a TEKS correlation guide with recommended skill entry points based on diagnostic assessment results.

The materials include a "TEKS Correlation Guide," accessible by navigating to IXL, What We Offer, Standards, Math, Precalculus. This guide supports differentiated instruction by allowing teachers to assign skills aligned to the TEKS based on student performance data from diagnostic assessments, which can be accessed through the "View Reports" feature.

The "Differentiation Guide" serves as the initial point of access for the diagnostic assessment in "Real-Time Mode." Teachers can navigate to Differentiation Guide, Assessment, Learn More, For Teachers, Real-Time Mode, View Teacher Guide. This tool provides data aligned with state assessment results and supports educators in placing students in appropriate skills based on their performance.

1.1d – Materials include protocols with corresponding guidance for unit and lesson internalization.

The materials include protocols for lesson internalization to support both educators and students. For example, navigating to Learning, Math, Grades, Precalculus provides access to skills practice organized by topic. Within the "Converting Between Radians and Degrees" lesson, a dedicated section allows users to review prior content to strengthen foundational understanding. This section includes the embedded prompt, "Work it out. Not feeling ready yet? This can help," which directs users to review resources like "Solve linear equations: mixed review" and "Midpoints." These features provide opportunities to connect prior knowledge to current learning objectives. However, materials do not include specific guides for unit internalization.

The materials for *IXL Math* include the "IXL Teacher's User Guide." Accessed through IXL, Resources, User Guides, Teachers, Complete Guide, the resource provides an overview of IXL usage, including "Accessing Standards Aligned Skills." However, materials do not include guides for unit internalization.

1.1e – Materials include resources and guidance for instructional leaders to support educators with implementing the materials as designed.

The materials include strategies to support educator implementation, such as daily instruction, core curriculum integration, diagnostic assessments, standardized test preparation, personalized practice, and whole-class instruction. Located by navigating IXL, Resources, User Guides, each implementation strategy is accompanied by a PDF and a video that outlines the steps needed for effective classroom use.

The materials include the "Implementation Guide for Diagnostic Assessment," which provides a three-step process: 1) Students complete the initial diagnostic, 2) Teachers access personalized action plans based on student results, 3) Teachers track progress through either the weekly completion of 10–15 diagnostic questions or consistent engagement with IXL "Skill" practice. While these resources support classroom instruction, the materials do not include pacing recommendations and offer limited support for instructional leaders, as the program is primarily designed for direct use by teachers.

1.2 Lesson-Level Design

GUIDANCE	SCORE SUMMARY	RAW SCORE
1.2a	This guidance is not applicable to the program.	N/A
1.2b	The materials do not include detailed overviews with learning objectives and assessment resources aligned with the ELPS. Materials do include detailed overviews with learning objectives, lesson components with suggested time frames, and assessment resources aligned with the TEKS.	1/5
1.2c	All criteria for guidance met.	2/2
—	**TOTAL**	3/7

1.2a – If designed to be static, materials include detailed lesson plans with learning objectives, teacher and student materials, lesson components with suggested timeframes, and assessment resources aligned with the TEKS and ELPS.

This guidance is not applicable because the program is not designed to be static.

1.2b – If designed to be adaptive, materials include detailed lesson overviews with learning objectives, lesson components with suggested timeframes, and assessment resources aligned with the TEKS and ELPS.

The materials include comprehensive unit overviews that provide a detailed list of lesson components aligned to the TEKS. The TEKS lesson overviews are organized by "Strands." The materials include comprehensive unit overviews that provide a detailed list of lesson components, the TEKS, and student expectations aligned to the lesson components. Students have the opportunity to learn from an example or watch a video.

The materials include detailed lesson overviews accompanied by interactive online resources, materials, and assessments. Each lesson example supports lesson internalization, beginning with a key idea that introduces the topic and provides a detailed explanation aligned to skill-based questions. Each question includes an "Enable" function with a digital timer to support pacing. Materials provide opportunities for students to engage in group work through "Start Group Jam." There is no evidence of ELPS alignment.

1.2c – Materials contain support for families in Spanish and English for each unit, with suggestions on supporting the progress of their student(s).

The materials provide step-by-step guidelines in English to help families support their child's engagement in learning. The "Communicate with Parents" section includes an "IXL Parent Guide" video in English with Spanish subtitles, and a "Parent Handout" and "Analytics Guide" are available for families in both Spanish and English.

The materials include support for families in Spanish and English, with suggestions on ways to engage in student learning when using *IXL Math* at home. PDF handouts for families are available for download in both Spanish and English from My IXL, Resources, Printable Resources. Educators can choose from two types of handouts: The first option is a pre-filled form with the student's name and password, and the second option is a blank form. Both handout types are offered in both Spanish and English.

2. Progress Monitoring

Materials support educators in effective implementation through frequent, strategic opportunities to monitor and respond to student progress.

2.1 Instructional Assessments

GUIDANCE	SCORE SUMMARY	RAW SCORE
2.1a	All criteria for guidance met.	2/2
2.1b	All criteria for guidance met.	2/2
2.1c	The materials do not include accommodations, including content and language supports, and calculators that educators can enable or disable to support individual students. The materials do include some printable assessments and a text-to-speech accommodation that educators can enable or disable to support individual students.	2/4
2.1d	All criteria for guidance met.	4/4
2.1e	All criteria for guidance met.	4/4
—	**TOTAL**	14/16

2.1a – Materials include the definition and intended purpose for the types of instructional assessments.

The materials include the intended purpose for diagnostic assessments in "My IXL Resources," stating diagnostics "pinpoint(s) students' grade-level proficiency and generate(s) personalized action plans to help learners grow."

The "Guide to Understanding the Diagnostic Action Plan" provides guidance and examples for using diagnostic assessments to inform instruction. This guide supports teachers in adjusting the instructional pathway for individual students based on their diagnostic results.

The materials do not include a definition or intended purpose for summative and formative assessments.

2.1b – Materials include guidance to ensure consistent and accurate administration of instructional assessments.

The materials include a "Quick-Start Guide" that features the IXL "Flex Diagnostic Real-Time Mode," which provides step-by-step guidance for teachers on accurately administering the IXL "Flex Diagnostic." The program also offers suggested time frames for continuing the diagnostic.

While the materials include both formative and summative assessments, there is no guidance for the accurate and consistent administration of these assessments.

2.1c – Digital assessments include printable versions and accommodations, including text-to-speech, content and language supports, and calculators, that educators can enable or disable to support individual students.

IXL Math provides the opportunity to print teacher-created "Quizzes"; however, no other assessments in the materials include a printable version. The diagnostic assessment is adaptive and cannot be printed.

The IXL "Diagnostic" assessment includes a text-to-speech option that can be enabled or disabled to support individual students, but this accommodation is not available for other assessments provided in the materials.

The materials do not include content and language supports. While the materials do include the ability to turn on translation support for individual students, this does not meet the definition of content and language supports, examples of which include pop-ups and rollovers.

A calculator is provided in the materials for some grade levels, but there is no ability to enable or disable this accommodation for individual students.

2.1d – Materials include diagnostic assessments with TEKS-aligned tasks or questions, including interactive item types with varying complexity levels.

Diagnostic assessments include more than two unique interactive item types, such as multiple-choice, graphing, drag-and-drop, text entry, and multi-select questions aligned with the TEKS.

The "Diagnostic Hub Student Guide" explains how the diagnostic assesses student knowledge through varying complexity levels and a progression of skills ranging from basic recall to multi-step reasoning, and supports personalized learning paths. While evidence of complexity is implicit in the questions, the questions are not explicitly labeled by complexity level. Additionally, not all students may have access to varying levels of complexity, as the materials are adaptive and become more complex as the student becomes more successful.

2.1e – Materials include a variety of formative assessments with TEKS-aligned tasks or questions, including interactive item types with varying complexity levels.

Formative assessments in the materials include "Quizzes," which offer a variety of TEKS-aligned questions at more than two levels of complexity. "Quizzes" provide a bank of questions for teachers to create custom formative assessments. The question bank offers multiple TEKS-aligned items that range from DOK 1 to DOK 3, with increasing rigor.

The materials include topic-level diagnostic assessments that feature a variety of task types and question formats. In the "Texas Essential Knowledge and Skills: Precalculus" section under "Learning Math Skills,"

the "Quadratic Functions" lesson includes one text entry item and two equation editor items to assess student understanding.

2.2 Data Analysis and Progress Monitoring

GUIDANCE	SCORE SUMMARY	RAW SCORE
2.2a	The materials do not include a rationale for each correct or incorrect response.	1/3
2.2b	All criteria for guidance met.	1/1
2.2c	All criteria for guidance met.	2/2
2.2d	This guidance is not applicable to the program.	N/A
2.2e	All criteria for guidance met.	1/1
—	**TOTAL**	5/7

2.2a – Instructional assessments include scoring information and guidance for interpreting student performance, including rationale for each correct and incorrect response.

The materials provide teachers with assessment scoring information for individual students. The "My IXL Diagnostic" teacher page offers "A Guide to Understanding the Diagnostic Action Plan," which provides guidance for interpreting the "Levels," "Overall Strand Level," and "Recommendations" for each student to support instructional decision-making.

While the materials provide correct procedural steps as explanations for incorrect answers on the student-facing side, rationales for any correct or incorrect responses are not included.

2.2b – Materials provide guidance for the use of included tasks and activities to respond to student trends in performance on assessments.

IXL Math provides administrators and teachers with an IXL "LevelUp Diagnostic" assessment. This diagnostic assessment is an adaptive assessment tool that administrators can set up at the beginning of the school year to assess students' math knowledge. As students take this assessment, students and teachers are provided with a personalized action plan that allows teachers to respond to student trends in performance by identifying the skills and lessons where students have not yet reached proficiency. Students continue ongoing assessment by answering an additional 10–15 questions per week, which keeps their proficiency levels up to date and updates each student's personalized action plan.

2.2c – Materials include tools for teachers to track student progress and growth, and tools for students to track their own progress and growth.

The materials include a "Diagnostic Action Plan" for teachers that tracks individual student assessment data in visual reports, highlighting areas of progress, growth, and recommended support. The "Progress and Improvement" report allows educators to track each student's progress and growth toward proficiency and mastery of concepts.

The materials include tools for students to track their own progress and growth. For example, in "Math Awards," students monitor their progress using visual growth trackers and progress charts aligned to learning pathways. Badges mark learning milestones.

2.2d – If designed to be static, materials provide prompts and guidance to support educators in conducting frequent checks for understanding at key points throughout each lesson or activity.

This guidance is not applicable because the program is not designed to be static.

2.2e – If designed to be adaptive, materials provide frequent checks for understanding at key points throughout each lesson or activity.

The materials include "Skills," which provide frequent checks for understanding at key points throughout the practice. For example, in "Skills" "C: Function transformations," individual "Skills" include questions that provide immediate feedback on student responses, with just-in-time opportunities to correct misunderstandings before proceeding to the next question.

3. Supports for All Learners

Materials support educators in reaching all learners through design focused on engagement, representation, and action/expression for learner variability.

3.1 Differentiation and Scaffolds

GUIDANCE	SCORE SUMMARY	RAW SCORE
3.1a	All criteria for guidance met.	1/1
3.1b	All criteria for guidance met.	4/4
3.1c	The materials do not include explicit educator guidance for enrichment and extension activities.	0/2
3.1d	The materials do not include content and language supports, and calculators that educators can enable or disable to support individual students.	1/3
3.1e	The materials do not include educator guidance on offering options and supports for students to demonstrate understanding of mathematical concepts in various ways, such as perform, express, and represent.	0/2
—	**TOTAL**	6/12

3.1a – Materials include explicit educator guidance for lessons or activities scaffolded for students who have not yet reached proficiency in prerequisite or grade-level concepts and skills.

The materials include explicit educator guidance for lessons or activities scaffolded for students who have not yet reached proficiency in prerequisite or grade-level concepts and skills. In "Analytics," the "Flex Diagnostic Strand Analysis" groups students by skill level, with each group receiving recommended skills for small-group instruction.

3.1b – Materials include explicit educator guidance for language supports, including pre-teaching and embedded supports for developing academic vocabulary and unfamiliar references in text.

The "Learn with an Example" section in the materials includes embedded supports and pre-teaching for developing academic vocabulary. The key ideas section includes definitions, labeling, and color coding. Additionally, the "Get more out of IXL Lessons" videos demonstrate how the materials include embedded supports and pre-teaching for unfamiliar references in text.

The materials include embedded support for developing academic vocabulary. In "Skill" "Domain and range of polynomials," new terms are hyperlinked, allowing users to access the relevant skill where the term is explained and used in context. The accompanying video includes closed captions and begins with a discussion of related concepts and vocabulary, including *domain*, *range*, *interval notation*, and

polynomial function. However, the materials do not provide clear guidance for teachers on how to effectively implement language supports when teaching this vocabulary.

The materials include explicit educator guidance for language supports, including embedded supports for developing academic vocabulary and unfamiliar references. For example, in Precalculus, the video lesson "Matrix Vocabulary" introduces vocabulary and unfamiliar references in context. Educators can pause to explain concepts and break down terminology for students. In addition, the video provides practice that reinforces newly introduced vocabulary and references.

3.1c – Materials include explicit educator guidance for enrichment and extension activities for students who have demonstrated proficiency in grade-level and above grade-level content and skills.

The materials do not include explicit educator guidance for enrichment and extension activities for students who have demonstrated proficiency in grade-level and above-grade-level content and skills.

While there are calculus skills available in the product, there is no explicit educator guidance explaining how to use the above-grade-level extension or enrichment. Educators are not linked to next skills for above-grade-level students.

3.1d – Digital materials include accommodations, including text-to-speech, content and language supports, and calculators that educators can enable or disable to support individual students.

The materials do not include content and language supports, and calculators that educators can enable or disable to support individual students.

Text-to-speech, including diagnostic items, can be enabled and disabled for individual students by the educator through the Extend Audio Supports tab under Profile and Settings.

3.1e – Materials include educator guidance on offering options and supports for students to demonstrate understanding of mathematical concepts in various ways, such as perform, express, and represent.

The materials in this course do not include educator guidance available in other grade levels/courses on offering options and supports for students to demonstrate understanding of mathematical concepts in various ways, such as perform, express, and represent.

3.2 Instructional Methods

GUIDANCE	SCORE SUMMARY	RAW SCORE
3.2a	All criteria for guidance met.	5/5
3.2b	This guidance is not applicable to the program.	N/A
3.2c	All criteria for guidance met.	3/3
3.2d	All criteria for guidance met.	2/2
3.2e	All criteria for guidance met.	2/2
—	**TOTAL**	12/12

3.2a – Materials include explicit (direct) prompts and guidance for educators to build knowledge by activating prior knowledge, anchoring big ideas, and highlighting and connecting key patterns, features, and relationships through multiple means of representation.

The materials include direct guidance for educators and students that build knowledge by activating prior knowledge, anchoring big ideas, and highlighting and connecting key patterns, features, and relationships through multiple means of representation. For example, in the Precalculus "Skill" "R.3 Quadrants," the "Learn by Example" section, instructional video, and guided practice offer varied representations to support both teacher and student understanding. The "Learn by Examples" section defines angles using textual descriptions, labeled diagrams, and visual models. The accompanying video reinforces these concepts through animations that demonstrate angle rotation and identify the initial and terminal sides.

The materials include direct guidance for educators and students that highlight and connect key patterns, features, and relationships through multiple means of representation. For example, in the video lesson for "Skill" "O.4 Linear programming," students learn to graph linear equations with constraints. After developing foundational skills in solving systems of linear equations using various methods, students apply graphical representations to identify intersections and interpret solutions, reinforcing connections across representations.

No explicit (direct) prompts for educators to build knowledge by activating prior knowledge, anchoring big ideas, and highlighting and connecting key patterns, features, and relationships through multiple means of representation are present in the materials.

3.2b – If designed to be static, materials include educator guidance for effective lesson delivery and facilitation using various instructional approaches.

This guidance is not applicable because the program is not designed to be static.

3.2c – Materials include multi-tiered intervention methods for various types of practice and structures and educator guidance to support effective implementation.

The materials include multi-tiered intervention methods for various types of practice and instructional structures, along with educator guidance to support effective implementation. For example, *IXL Math* provides real-time reporting and offers recommendations for grouping students based on similar learning gaps. The "Trouble Spots" report displays data for all students and automatically groups them by the skills associated with missed questions. The educator dashboard includes options to "Start Group Jam" or "Suggest This Skill" for recommended groups. Additionally, educators can view individual student performance, including missed questions on specific topics and current SmartScores. Materials provide a multi-tiered intervention structure that supports various types of practice and instructional structures, along with educator guidance to support effective implementation. For example, the materials offer a three-tiered intervention model: Tier 1 includes reteaching concepts using a different approach; Tier 2 offers small-group instruction with targeted practice using the "Trouble Spots" feature; and Tier 3 provides one-on-one personalized practice. The "Teacher's User Guide" and "Implementation Guide for Supporting Core Curriculum" documents include a video that explains when to implement each intervention, how to apply the strategies, and how to monitor student progress.

3.2d – Materials include enrichment and extension methods that support various forms of engagement, and guidance to support educators in effective implementation.

The materials include enrichment and extension methods that support various forms of engagement through the "Next Up" feature. Once students demonstrate proficiency in a skill, "Next Up" suggests related enrichment or extension "Skills" to deepen learning. For example, after students demonstrate success with "Skill" "DD.3 Write a discrete probability distribution," the adaptive program may recommend "Skill" "DD.9 Expected values for a game of chance," providing opportunities to apply concepts in more complex situations.

The materials include enrichment and extension methods that support various forms of engagement through "Group Jam" activities. Teachers create these activities by selecting which "Skills" to include and choosing which students to invite. Depending on student ability levels, teachers can review questions with the group, add new "Skills" for extension, or select more challenging questions within the same concept for enrichment.

The materials include guidance to support educators in effectively implementing enrichment and extension methods in the article titled "What Is the Challenge Zone?" This resource explains how the "Challenge Zone" becomes available once students achieve a SmartScore of 90, and describes how these problems serve as the final stretch toward skill mastery.

3.2e – Materials include prompts and guidance to support educators in providing timely feedback during lesson delivery.

The materials include prompts and guidance to support educators in providing timely feedback during instruction. For example, the online platform features a "Questions Log" report that provides a "Skill" summary, including the current SmartScore, number of questions answered, time spent on the "Skill," and detailed information about each response. The report displays the item question, the correct answer, and the student's response. Educators can customize the display to show only missed questions or hide correct answers to focus solely on student input.

The materials include prompts and guidance to support educators in providing timely feedback during instruction. For example, the online platform includes a "Quiz Analysis" report that displays student responses and "Skill" levels after quiz submission. Educators can assign targeted practice based on individual student performance, including specific targeted "Skills" recommended by *IXL Math*.

3.3 Support for Emergent Bilingual Students

An emergent bilingual student is a student who is in the process of acquiring English and has another language as the primary language. The term emergent bilingual student replaced the term English learner in the Texas Education Code 29, Subchapter B after the September 1, 2021 update. Some instructional materials still use English language learner or English learner and these terms have been retained in direct quotations and titles.

GUIDANCE	SCORE SUMMARY	RAW SCORE
3.3a	This guidance is not applicable to the program.	N/A
3.3b	The materials do not include embedded linguistic accommodations for all levels of language proficiency as defined by the ELPS. The materials do include embedded linguistic accommodations for two levels of language proficiency, as defined by the ELPS.	2/4
3.3c	The materials do not include implementation guidance to support educators in effectively using the materials in state-approved bilingual/ESL programs.	0/1
3.3d	The materials do not include embedded guidance to support emergent bilingual students in building background knowledge or making cross-linguistic connections through oral and written discourse.	4/8
3.3e	This guidance is not applicable to the program.	N/A
—	**TOTAL**	6/13

3.3a – If designed to be static, materials include educator guidance on providing and incorporating linguistic accommodations for all levels of language proficiency [as defined by the English Language Proficiency Standards (ELPS)], which are designed to engage students in using increasingly more academic language.

This guidance is not applicable because the program is not designed to be static.

3.3b – If designed to be adaptive, materials include embedded linguistic accommodations for all levels of language proficiency [as defined by the English Language Proficiency Standards (ELPS)], which are designed to engage students in using increasingly more academic language.

The materials do not include embedded linguistic accommodations for all levels of language proficiency as defined by the ELPS.

The materials include embedded linguistic accommodations for two levels of language proficiency as defined by the ELPS. A clickable glossary connects mathematical vocabulary terms with visual representations, as appropriate, while a clickable green box provides Spanish translations of key terms.

"Skills" in the course include built-in visuals for mathematical concepts, as appropriate, to support connections to academic language.

3.3c – Materials include implementation guidance to support educators in effectively using the materials in state-approved bilingual/ESL programs.

The materials do not include implementation guidance to support educators in effectively using the materials in state-approved bilingual/ESL programs.

3.3d – Materials include embedded guidance to support emergent bilingual students in developing academic vocabulary, increasing comprehension, building background knowledge, and making cross-linguistic connections through oral and written discourse.

The materials include some support for educators to promote the development of academic vocabulary and increase comprehension through oral and written discourse. The materials do not include embedded guidance to support emergent bilingual students in building background knowledge or making cross-linguistic connections through oral and written discourse.

"IXL for Math Discourse" offers guidance for supporting academic vocabulary and increasing comprehension through math discourse in the form of individual reflection, partner share, and class discussion. The materials include prompts such as: "Can you use the word ___ in your explanation? Did anyone else solve this problem in a different way? Whose representation is the most helpful? Why? How could your partner's explanation be clearer?" etc. These prompts can be used in either oral discourse or written discourse with peers.

"Spotlight on Vocabulary" offers guidance for developing vocabulary in math discourse and through "Group Jam" reflections and discussions. Prompts for vocabulary include: "Is this an example of ___? Why or why not? Can you restate that approach, but use the word ____ in your explanation?"

3.3e – If designed for dual language immersion (DLI) programs, materials include resources that outline opportunities to address metalinguistic transfer from English to the partner language.

This guidance is not applicable because the program is not designed for dual language immersion (DLI) programs.

4. Depth and Coherence of Key Concepts

Materials are designed to meet the rigor of the standards while connecting concepts within and across grade levels/courses.

4.1 Depth of Key Concepts

GUIDANCE	SCORE SUMMARY	RAW SCORE
4.1a	All criteria for guidance met.	2/2
4.1b	The materials do not include enrichment and extension materials that increase in rigor and complexity, leading to above-grade-level proficiency in the mathematics TEKS.	2/4
—	**TOTAL**	4/6

4.1a – Practice opportunities throughout learning pathways (including instructional assessments) require students to demonstrate depth of understanding aligned to the TEKS.

Practice opportunities embedded within "Skills" require students to demonstrate depth of understanding aligned to the TEKS. For example, "Skill" "K.2 Solve exponential equations using logarithms" provides students with practice problems that involve solving for the value of x in exponential equations. Students have the option to engage with the content by selecting "Learn with an Example" or watching a video. The "Learn with an Example" feature presents a sample problem, highlights key concepts such as the power property and common logarithm, and provides a step-by-step solution to model the procedural steps required to solve the problem.

In Precalculus, students engage with formative assessment questions at varying levels of complexity. For example, in "Skill" "U.4 Find properties of circles," student tasks include identifying properties of circles from graphs and equations in the forms $x^2 + y^2 = r^2$ and$(x - h)^2 + (y - k)^2 = r^2$. Students are then required to determine the radius using both perfect square values and expressions involving radical simplification, increasing the rigor of the tasks. These questions require students to analyze given information, apply strategic thinking, and synthesize their understanding to identify the center and radius of a circle and construct the corresponding equation.

4.1b – Questions and tasks, including enrichment and extension materials, increase in rigor and complexity, leading to grade-level and above grade-level proficiency in the mathematics TEKS.

The materials include questions and tasks that increase in rigor and complexity, leading to grade-level proficiency in the mathematics TEKS. For example, in "Skill" "F.1 Find the roots of factored polynomials," students are required to find the roots for quadratic and higher-degree functions.

The materials include lessons that support grade-level proficiency in mathematics as outlined by the TEKS. In the lesson "A.3 Evaluate Functions," students begin by working with linear function notation before progressing to more complex parent functions, such as quadratics. Questions and tasks increase in rigor as students apply their understanding to a broader range of function types. If the student does not answer correctly, the step-by-step procedural skills for answering the question correctly are presented, and the student receives a different question for the same skill until the student answers correctly. In addition, "Skills" practices include scaffolded questions and tasks in the "Work it out: Not feeling ready yet? These can help" section below the given question. To accelerate students to grade level, the section includes "Solve a quadratic equation using the zero product property."

No evidence of enrichment or extension resources leading to above-grade-level proficiency is present in the materials.

4.2 Coherence of Key Concepts

GUIDANCE	SCORE SUMMARY	RAW SCORE
4.2a	All criteria for guidance met.	1/1
4.2b	The materials do not provide vertical coherence for grades 3–12.	0/1
4.2c	The materials do not demonstrate coherence across lessons or activities by connecting students' prior knowledge of concepts and procedures to the mathematical concepts to be learned in the current grade level and future grade levels.	0/4
—	**TOTAL**	1/6

4.2a – Materials demonstrate coherence across concepts horizontally within the grade level by connecting patterns, big ideas, and relationships.

The materials demonstrate coherence across concepts horizontally within the grade level by connecting patterns, big ideas, and relationships. For example, the "Skills" unit "R: Trigonometry" includes patterns of right triangles and the unit circle to find trigonometric ratios, angles, and missing sides, with concepts from "Skills" "R.5" through "R.8," "R.12," and "R.13," respectively. The sequencing and topics in this unit demonstrate the connection of big ideas and the exploration of patterns and relationships.

The materials demonstrate coherence across concepts by reinforcing foundational knowledge needed to identify inverse matrices. In "Skill" "Q.14 Identify inverse matrices," students build on prior learning about matrix operations. The "Skill" includes access to "Work it out: Not feeling ready yet? These can help," which links to "Multiplying two matrices," allowing students to connect new learning to previous content and support conceptual understanding.

4.2b – Materials demonstrate coherence vertically across concepts and grade bands, including connections from grades 3–12, by connecting patterns, big ideas, and relationships.

The materials demonstrate vertical coherence across some concepts and grade bands, but do not address the full span of grades 3–12.

4.2c – Materials demonstrate coherence across lessons or activities by connecting students’ prior knowledge of concepts and procedures to the mathematical concepts to be learned in the current grade level and future grade levels.

The materials do not demonstrate coherence across lessons or activities by connecting students' prior knowledge of concepts and procedures to the mathematical concepts to be learned in the current grade level and future grade levels.

4.3 Coherence and Variety of Practice

GUIDANCE	SCORE SUMMARY	RAW SCORE
4.3a	The materials do not provide spaced-retrieval opportunities with previously learned skills and concepts across learning pathways.	0/2
4.3b	The materials do not provide interleaved practice opportunities with previously learned skills and concepts across learning pathways.	0/2
—	**TOTAL**	0/4

4.3a – Materials provide spaced retrieval opportunities with previously learned skills and concepts across learning pathways.

While present in *IXL Math* for earlier grades and courses, the Precalculus materials do not provide spaced-retrieval opportunities with previously learned skills and concepts across learning pathways.

4.3b – Materials provide interleaved practice opportunities with previously learned skills and concepts across learning pathways.

While present in *IXL Math* for earlier grades and courses, the Precalculus materials do not provide interleaved practice opportunities with previously learned skills and concepts across learning pathways.

5. Balance of Conceptual and Procedural Understanding

Materials are designed to balance conceptual understanding, procedural skills, and fluency.

5.1 Development of Conceptual Understanding

GUIDANCE	SCORE SUMMARY	RAW SCORE
5.1a	The materials do not provide opportunities for students to interpret, analyze, and evaluate mathematical concepts and complex real-world situations.	0/3
5.1b	The materials do not include questions and tasks that provide opportunities for students to create models of mathematical situations; however, opportunities to create representations are present.	1/2
5.1c	Questions and tasks do not prompt students to apply conceptual understanding to new situations and contexts.	0/1
—	**TOTAL**	1/6

5.1a – Questions and tasks provide opportunities for students to interpret, analyze, and evaluate mathematical concepts and complex, real-world situations.

The materials do not provide opportunities for students to interpret, analyze, and evaluate mathematical concepts and complex real-world situations.

5.1b – Questions and tasks provide opportunities for students to create concrete models and representations of mathematical situations.

The materials include questions and tasks that provide opportunities for students to create representations of mathematical concepts. For example, in "Skill" "J.2 Graphing logarithmic functions," students complete a table of values and graph the function by plotting points to create a visual representation.

The materials do not include questions and tasks that provide opportunities for students to create models of mathematical situations.

5.1c – Questions and tasks provide opportunities for students to apply conceptual understanding to new problem situations and contexts.

The materials do not include questions and tasks that provide opportunities for students to apply conceptual understanding to new problem situations and contexts. "Skill" "E.10 Pascal's triangle and the binomial theorem" provides a binomial of a given degree to expand, but only asks that the student complete the missing coefficient of the completed expansion. Students are not given the opportunity to expand the binomial by multiplication to apply the concept of expansion and relate Pascal's triangle

pattern to the binomial theorem, limiting their opportunity to apply conceptual understanding in different contexts.

5.2 Development of Fluency

GUIDANCE	SCORE SUMMARY	RAW SCORE
5.2a	All criteria for guidance met.	2/2
5.2b	All criteria for guidance met.	3/3
5.2c	All criteria for guidance met.	3/3
5.2d	The materials do not contain guidance to support students in selecting the most efficient approaches when solving mathematics problems.	0/1
—	**TOTAL**	8/9

5.2a – Materials provide tasks that are designed to build student automaticity and fluency necessary to complete grade-level mathematical tasks.

The materials provide tasks designed to build the student automaticity necessary to complete grade-level mathematical tasks. For example, in "Skill" "E.2 Divide polynomials using synthetic division," students evaluate polynomial division problems to determine whether factoring or synthetic division should be used to find the quotient. Students then practice using the synthetic division structure and operations to determine each quotient, building automaticity in applying the procedures and operations necessary to evaluate each division problem using synthetic division.

The materials provide tasks designed to build the student fluency necessary to complete grade-level mathematical tasks. For example, in "Skill" "Q.7 Simplify matrix expressions," students use the rules for standard matrix structures to determine if a matrix expression can be simplified or is undefined. Students then apply matrix operation rules to simplify the expression. Real-time feedback provided for student responses supports students in building fluency in recognizing patterns and applying correct operations to solve matrix expressions.

5.2b – Materials provide opportunities for students to practice the application of efficient, flexible, and accurate mathematical procedures throughout learning pathways.

The materials provide opportunities for students to practice the application of efficient and accurate mathematical procedures throughout learning pathways. For example, in section N of "Skills," "System of equations," students are introduced to multiple methods for solving systems, including substitution, elimination, graphing, and augmented matrices. Students practice selecting the most efficient and accurate procedure for each system of equations problem as they advance through the section.

The materials provide opportunities for students to practice the application of flexible and accurate mathematical procedures. For example, in the "Texas Essential Knowledge and Skills (TEKS): Precalculus Skill Plan" for TEKS P.4E (trigonometric ratios), students engage with a series of "Skills" that require them to select and apply trigonometric procedures across multiple contexts. As students progress through the "Skill Plan," they determine missing side lengths, angle measures, and complete triangle solutions using

reference angles, inverse trigonometric functions, and unit circle reasoning. These tasks allow students to apply flexible procedures, such as applying the unit circle, evaluating inverse functions, or solving equations, to build accuracy as they solve trigonometric ratio problems.

5.2c – Materials provide opportunities for students to evaluate mathematical representations, models, strategies, and solutions for efficiency, flexibility, and accuracy throughout learning pathways.

The materials provide opportunities for students to evaluate mathematical representations, models, strategies, and solutions for efficiency, flexibility, and accuracy throughout learning pathways through the "IXL for Math Discourse" "Group Jam Guide." The guide instructs educators on using the "Group Jam" feature, which includes having students work on the same math problem together. Then, the educator has various options for students to participate in math discourse.

Students evaluate mathematical representations, models, strategies, and solutions for efficiency in the "Partner Share" and "Class Discussion" strategy sections. In these sections, educators are prompted to ask students questions such as, "Whose approach was most efficient? Why?"

Students evaluate mathematical representations, models, strategies, and solutions for flexibility in the "Class Discussion" strategy section. In this section, educators are prompted to ask students questions such as, "Whose approach is the most flexible? Why?" Students also evaluate mathematical representations, models, strategies, and solutions for accuracy in the "Class Discussion" strategy section. In this section, educators are prompted to ask students questions such as, "Whose approach is the most likely to be accurate? Why?"

5.2d – Materials contain guidance to support students in selecting the most efficient approaches when solving mathematics problems.

The materials do not contain guidance to support students in selecting the most efficient approaches when solving mathematical problems. While students have opportunities to choose which method to use when solving problems, the materials do not provide guidance to support selecting the most efficient approach.

5.3 Balance of Conceptual Understanding and Procedural Fluency

GUIDANCE	SCORE SUMMARY	RAW SCORE
5.3a	The materials do not explicitly state how the conceptual and procedural emphases of the TEKS are addressed.	0/2
5.3b	The materials do not include questions and tasks that provide opportunities for students to use concrete models as required by the TEKS. The materials do include questions and tasks that provide opportunities for students to use pictorial representations and abstract models as required by the TEKS.	2/3
5.3c	The materials do not include supports for students in connecting, creating, defining, and explaining concrete models to abstract concepts as required by the TEKS. The materials do include supports for students in connecting, creating, defining, and explaining representational models to abstract concepts as required by the TEKS.	3/6
—	**TOTAL**	5/11

5.3a – Materials explicitly state how the conceptual and procedural emphasis of the TEKS are addressed.

The materials do not explicitly state how the conceptual or procedural emphasis of the TEKS is addressed. While the "Texas Essential Knowledge and Skills (TEKS): Precalculus Skill Plan" lists which *IXL Math* "Skills" align to each TEKS, no explicit explanation of why or how conceptual understanding supports the procedural emphasis of the TEKS is provided.

5.3b – Questions and tasks provide opportunities for students to use concrete models, pictorial representations, and abstract models as required by the TEKS.

The materials do not include questions and tasks that provide opportunities for students to use concrete models, as required by the TEKS.

The materials provide questions and tasks that include pictorial representations and abstract models, as required by the TEKS. For example, in "Skill" "D.1 Find the maximum or minimum value of a quadratic function," students move from interpreting graphs of parabolas to symbolic representations of quadratic functions. Students first identify the vertex from the graph to understand its maximum or minimum value, then calculate the vertex algebraically using function notation or standard form equations.

The materials provide questions and tasks that include pictorial representations and abstract models, as required by the TEKS. For example, "Skill" "U.1 Find properties of a parabola" presents a pictorial model to help students visualize geometric features of a parabola. Later, "Skills" such as "U.13 Convert equations of conic sections from general to standard form" focus on abstract models by requiring manipulation of algebraic expressions and application of formal procedures.

5.3c – Materials include supports for students in connecting, creating, defining, and explaining concrete and representational models to abstract (symbolic/numeric/algorithmic) concepts, as required by the TEKS.

The materials do not include supports for students in connecting, creating, defining, and explaining concrete models to abstract concepts, as required by the TEKS.

The materials include supports for students in connecting representational models to abstract concepts. For example, in "Skill" "R.5 Find trigonometric ratios using right triangles," students use diagrams of right triangles to identify the hypotenuse, adjacent, and opposite sides relative to a given angle. The "Learn with an Example" feature guides students in translating these visual models into abstract notation by applying the appropriate trigonometric formulas.

The materials include supports for students in creating representational models of abstract concepts. For example, in "Skill" "V.1 Find the magnitude of a vector," students create pictorial representations of vectors in the coordinate plane. Students use these diagrams along with the distance formula to develop and apply the abstract algorithm for calculating vector magnitude.

The materials include supports for students in defining and explaining representational models of abstract concepts. For example, in "Skill" "R.5 Find trigonometric ratios using right triangles," students define and explain how to calculate sine, cosine, and tangent using right triangle diagrams. Additionally, "Skill" "V.1 Find the magnitude of a vector," requires students to describe how vector magnitude relates to distance in the coordinate plane, reinforcing connections between the visual models and the abstract algorithm.

5.4 Development of Academic Mathematical Language

GUIDANCE	SCORE SUMMARY	RAW SCORE
5.4a	All criteria for guidance met.	1/1
5.4b	The materials do not include embedded educator guidance to extend students' use of academic mathematical vocabulary in context when communicating with peers and educators.	1/2
5.4c	All criteria for guidance met.	1/1
5.4d	All criteria for guidance met.	2/2
5.4e	Materials do not include embedded guidance to anticipate a variety of student answers, including exemplar responses to questions and tasks, and guidance to support or redirect inaccurate student responses.	0/2
—	**TOTAL**	5/8

5.4a – Materials provide opportunities for students to develop academic mathematical language using visuals, manipulatives, or other language development strategies.

Materials provide opportunities for students to develop academic mathematical language using visual representations and embedded vocabulary support. For example, in "Skill" "S.2 Write equations of sine functions from graphs," the "Learn with an Example" section introduces each characteristic of the sine function with a visual representation and corresponding mathematical terminology. The concept of amplitude is defined in words, represented symbolically as $|A|$, and illustrated graphically as the vertical distance between the maximum and minimum points. This integration of visuals, notation, and precise vocabulary helps students connect graphical features with academic language.

The materials provide opportunities for students to develop academic mathematical language using visual representations and embedded vocabulary support. For example, in "Skill" "X.2 Convert complex numbers from rectangular to polar form," aligned with TEKS P.3D, students are introduced to vocabulary such as *modulus* (or *absolute value*) and *argument*. In the "Learn with an Example" section, each term is defined and paired with a visual that illustrates placement in the complex plane. These supports help students connect mathematical language to geometric meaning, reinforcing conceptual understanding and vocabulary development.

5.4b – Materials include embedded educator guidance to scaffold, support, and extend students' use of academic mathematical vocabulary in context when communicating with peers and educators.

Materials include embedded educator guidance to scaffold and support students' use of academic mathematical vocabulary in context when communicating with peers and educators through "IXL for Math Discourse" "Group Jam Guide." The guide provides a section titled "Spotlight on Vocabulary," which instructs educators on how to use *IXL Math*'s video tutorials. For example, the guide instructs educators

on how to introduce new vocabulary using video tutorials, stating that students can watch the video either as a class or independently. Once students have watched the video tutorials, the guide suggests students record their new vocabulary by "writing and drawing the meaning of each word," or educators can record new vocabulary on a classroom vocabulary chart. The guide continues with having educators regularly incorporate their new vocabulary in their "Group Jam" reflections and discussions. The guide provides educators with prompts to continue supporting students' use of vocabulary such as, "Can anyone remind us what _____ means?", "What is the _____ in the problem?", "Is this an example of _____? Why or why not?", and "Can you restate that approach, but use the word _____ in your explanation?"

IXL "Skills" and IXL "Lessons" include embedded keywords hyperlinked to definitions and video explanations, which educators and students can access as needed.

5.4c – Materials include embedded guidance to support student application of appropriate mathematical language and academic vocabulary in discourse.

The materials include embedded guidance to support student application of appropriate mathematical language and academic vocabulary in discourse through "IXL for Math Discourse" "Group Jam Guide." The guide offers educators various options for discourse, such as "Partner Share" and "Class Discussion," with provided prompts. The guide supports student application of appropriate mathematical language and academic vocabulary with prompts in the "Class Discussion" section, such as "Can you use the word ____ in your explanation?"

At the end of the guide, there is a section specific to using "Group Jams" to support the application of appropriate mathematical language and academic vocabulary in discourse. This section provides educators with prompts to continue supporting students' use of vocabulary, such as, "Can anyone remind us what _____ means?", "What is the _____ in the problem?", "Is this an example of _____? Why or why not?", and "Can you restate that approach, but use the word _____ in your explanation?"

5.4d – Materials include embedded guidance to facilitate mathematical conversations allowing students to hear, refine, and use math language with peers.

The materials include embedded guidance to facilitate mathematical conversations, allowing students to hear, refine, and use mathematical language with peers in the "IXL for Math Discourse" "Group Jam Guide." The guide provides educators with different options for mathematical conversations with peers in sections such as "Partner Share" and "Class Discussion" with provided prompts. The prompts provided in these sections help facilitate mathematical conversations, allowing students to hear, refine, and use math language with peers. Prompts include questions like, "Can you use the word ___ in your explanation?"

At the end of the guide, there is a section specific to using "Group Jams" to facilitate mathematical conversations with peers. This section provides educators with prompts such as, "Can anyone remind us what _____ means?", "What is the _____ in the problem?", "Is this an example of _____? Why or why not?", and "Can you restate that approach, but use the word _____ in your explanation?"

5.4e – Materials include embedded guidance to anticipate a variety of student answers including exemplar responses to questions and tasks, including guidance to support and/or redirect inaccurate student responses.

The materials do not include embedded guidance to anticipate a variety of student answers, including exemplar responses to questions and tasks, or guidance to support or redirect inaccurate student responses. While videos are provided to educators to support using the *IXL Math* platform, they do not include guidance to anticipate a variety of student answers, exemplar responses, or guidance to support or redirect inaccurate responses. For example, the video "IXL Quick Tip: Learn with an Example" highlights the "Learn with an Example" feature, a student-facing tool that demonstrates one way to solve a problem. While this feature provides an exemplar response, it does not offer guidance on addressing a variety of student answers or redirecting inaccurate responses.

5.5 Process Standards Connection

GUIDANCE	SCORE SUMMARY	RAW SCORE
5.5a	All criteria for guidance met.	1/1
5.5b	The materials do not include a description of how process standards are incorporated and connected through learning pathways.	0/2
5.5c	All criteria for guidance met.	1/1
—	**TOTAL**	2/4

5.5a – TEKS process standards are integrated appropriately into the materials.

The materials include TEKS process standards that are integrated appropriately into the materials. The "Texas Essential Knowledge and Skills (TEKS): Precalculus Skill Plan" identifies the alignment of each skill and lesson to both content and process standards. The online platform displays the relevant process standards within lessons, allowing educators to see how they are embedded in instruction. For example, "Skill" "A.1 Solving quadratic equations: word problems" is aligned with process standards related to applying mathematics to problems arising in everyday life, society, and the workplace. Additionally, the comprehensive "Skill Plan" outlines the connections and supports intentional integration of process standards across instructional materials. Materials include the TEKS process standards that are integrated appropriately into the materials. In the Precalculus materials, educators are provided with a "Texas Essential Knowledge and Skills (TEKS): Precalculus Skill Plan" that includes both the process standards and the corresponding content TEKS. This table identifies the lessons within the digital platform that address each standard, allowing educators to locate and implement instruction that aligns with specific TEKS. The inclusion of this correlation ensures that process standards are embedded purposefully throughout instruction, supporting student engagement in reasoning, communication, and problem solving.

5.5b – Materials include a description of how process standards are incorporated and connected throughout the learning pathways.

The materials do not include a description of how process standards are incorporated throughout the learning pathways. While materials include a list of process standards and corresponding practice "Skills" aligned with them, no evidence shows how process standards are connected throughout the learning pathways. For example, although the "Implementation Guide for Standards Prep" includes an overview YouTube video titled "IXL for Standards Prep," the video references only the California Common Core Content Standards Math and does not contain any reference to or alignment with the TEKS.

Although "Recommended Skills Pathways" indicate how students revisit standards over time, the materials do not clarify where or how process standards are addressed within the progression of skills. Additionally, while the "Texas Essential Knowledge and Skills (TEKS): Precalculus Skills Plan" lists activities aligned to specific process standards, this information is not integrated within student learning pathways

or lesson content. Additionally, the materials do not describe how process standards are connected across lessons or skill progressions, resulting in a lack of coherence throughout the learning pathways.

5.5c – Materials include an overview of the TEKS process standards incorporated into each lesson.

The materials do not include lessons as part of the Precalculus course; therefore, an overview of the TEKS process standards incorporated into each lesson is not provided.

The materials include an overview of the TEKS process standards incorporated into each "Skill." The "Texas Essential Knowledge and Skills (TEKS): Precalculus Skills Plan" provides a course-specific list that aligns each process standard with a set of corresponding Skills organized by standard.

6. Productive Struggle

Materials support students in applying disciplinary practices to productive problem-solving, including explaining and revising their thinking.

6.1 Student Self-Efficacy

GUIDANCE	SCORE SUMMARY	RAW SCORE
6.1a	All criteria for guidance met.	3/3
6.1b	All criteria for guidance met.	3/3
6.1c	All criteria for guidance met.	3/3
—	**TOTAL**	9/9

6.1a – Materials provide opportunities for students to think mathematically, persevere through solving problems, and to make sense of mathematics.

The materials provide opportunities for students to think mathematically through the use of "Skills." For example, "Skill" "Analyze and graph polynomial functions" requires students to think mathematically by identifying features, such as intercepts and end behavior. This supports students in connecting the algebraic form of functions to their graphical representations.

The materials provide opportunities for students to persevere through solving problems and to make sense of mathematics. Scaffolds are embedded to support skill development and encourage perseverance. For example, in "Skill" "R.4 Coterminal and reference angles," key terms related to sectors of a circle are highlighted, and practice problems gradually increase in difficulty, allowing students to build confidence before engaging with more complex tasks, thus increasing perseverance through problem-solving.

The materials provide activities that allow students to explore and make sense of mathematical concepts. Precalculus "Skill" "U: Conic sections" provides opportunities to attempt different strategies while solving equations and proving different properties of conics, thus requiring students to make sense of mathematics while progressing through the learning pathway.

6.1b – Materials support students in understanding, explaining, and justifying that there can be multiple ways to solve problems and complete tasks.

IXL Math provides opportunities for students to think mathematically, persevere through solving math problems, and make sense of mathematics. The "IXL for Math Discourse" includes teacher prompts and reflection questions for students to self-reflect or discuss with peers. For example, prompts include questions such as, "How did you solve this problem?", "Did you and your partner solve the problem in different ways?", "How would you convince someone who used a different method that your solution is correct?", and "Read your partner's written reflection. What parts do you understand? What do you have questions about?"

The materials support students in understanding that there are multiple ways to solve problems; they do not provide opportunities for them to explain or justify multiple solution paths for solving problems or completing tasks. The "Learn with an Example" embedded videos and detailed explanations for incorrect responses offer detailed explanations that present multiple ways for students to arrive at a solution.

The materials demonstrate various approaches to writing and solving equations, using diagrams and word problems, but there is no opportunity for students to articulate different methods or solution paths. For example, in "Solve a System of Equations Using Any Method: Word Problems," embedded videos encourage students to use substitution, elimination, or graphing to solve the problem. Embedded videos explain and justify that there can be multiple ways to solve problems and complete tasks.

6.1c – Materials are designed to require students to make sense of mathematics through multiple opportunities for students to do, write about, and discuss math with peers and/or educators.

The materials provide opportunities for students to make sense of mathematics through multiple opportunities to do math and discuss their thinking with peers and educators. For example, the *IXL Math* "Group Jam" feature allows students to do math collaboratively in real time while discussing math with peers and educators. However, the educator is responsible for creating and facilitating these opportunities for doing and discussing math in a "Group Jam," as indicated by IXL's guidance for effective "Group Jam" use.

The materials are designed to require students to make sense of mathematics through multiple opportunities for students to write about math with peers and educators through the "IXL for Math Discourse" "Group Jam Guide." This guide provides educators with three different strategies to incorporate written math discourse, such as "Individual Reflection," "Partner Share," and "Class Discussion." Within each of these strategies, educators are provided with prompts that require students to reflect on their learning. For example, in the Individual Reflection strategy, prompts include, "How did you solve this problem?", "How do you know your approach worked?", "What connections do you see between this problem and what you have previously learned?"

6.2 Facilitating Productive Struggle

GUIDANCE	SCORE SUMMARY	RAW SCORE
6.2a	All criteria for guidance met.	8/8
6.2b	The materials do not include prompts and guidance to support educators in providing explanatory feedback based on anticipated misconceptions. The materials do include prompts and guidance to support educators in providing explanatory feedback based on student responses.	2/4
—	**TOTAL**	10/12

6.2a – Materials support educators in guiding students to share and reflect on their problem-solving approaches, including explanations, arguments, justifications, and multiple points of entry.

The materials support educators in guiding students to share and reflect on their problem-solving approaches, including explanations, arguments, justifications, and multiple points of entry through "IXL for Math Discourse" "Group Jam Guide." This guide provides educators with three strategies for students to share and reflect on their problem-solving approaches, including "Individual Reflection," "Partner Share," and "Class Discussion." Each of these strategies includes prompts for educators that require students to explain, argue, justify, and reflect on multiple points of entry. For example, in the "Individual Reflection" strategy, prompts include, "Could you have started solving this problem in a different way?", "How would you justify each step of your approach?", and "Why did you choose this approach?" Prompts in the "Partner Share" strategy include, "What did you learn from your partner's approach?" and "Can you think of a third way to solve this problem? A fourth?" The "Class Discussion" strategy includes prompts such as, "Why do multiple ways of solving this problem work?" and "Can you convince the class your solution is correct?"

6.2b – Materials include prompts and guidance to support educators in providing explanatory feedback based on student responses and anticipated misconceptions.

The materials do not include prompts and guidance to support educators in providing explanatory feedback based on anticipated misconceptions.

The materials include guidance to support educators in providing explanatory feedback based on student responses. For example, for incorrect student responses in "Skill" "R.6 Find trigonometric ratios using the unit circle," the materials provide students with immediate explanatory feedback with step-by-step instructions to produce the correct solution.

Additionally, educators may monitor skills performance through Analytics by viewing "Trouble Spots" or "Skills" to review questions attempted along with student incorrect responses, with recommended continued skills practice as provided feedback.

While "Group Jam" is a resource for educators, there is no guidance to support educators in providing explanatory feedback based on student responses and anticipated misconceptions.